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ABSTRACT

This 125-item annotated bibliography gives access to much of research undertaken in the past decade concerning sex bias in testing, e.g., educational achievement tests, career interest inventories, and aptitude tests attacked as being biased against females. The items originated with a computer search of several data bases including the following: The Educational Resources Information Center (ERIC) data base yields documents announced in Resources in Education (RIF) and journal articles indexed in Current Index to Journals in Education (CIJE), which covers more than 700 education-related journals; Psychological Abstracts; and Comprehensive Dissertation Abstracts. Entries are numbered and listed alphabetically by author; an abstract or, in the case of journal articles, a shorter annotation is provided for each citation. A subject index consisting of ERIC descriptors and entry numbers follows the bibliography. (RL)

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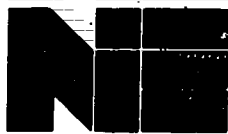
SEX BIAS IN TESTING

An Annotated Bibliography
by
Barbara Hunt

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ERIC Clearinghouse on Tests, Measurement, and Evaluation
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Introduction

Research undertaken in recent years, primarily in the past decade, concerning sex bias in testing discloses that the three principal sources of such bias are society itself, the content of the test, and how test results are used. Educational achievement tests, career interest inventories, and aptitude tests have all come under attack as being biased against females. In achievement tests, for example, male characters are mentioned more often and in more active roles than female characters; career interest inventories frequently have separate male and female scales and norms resulting in disproportionate counseling regarding career options; and aptitude tests may be written and interpreted according to sex-role stereotypes.

Much of the research is listed in this bibliography, which originated with a computer search of several data bases including the following: The Educational Resources Information Center (ERIC) data base yields documents announced in Resources in Education (RIE) and journal articles indexed in Current Index to Journals in Education (CIJE), which covers more than 700 education-related journals; Psychological Abstracts, an index providing summaries of literature in psychology and related disciplines, covers more than 800 journals, technical reports, monographs, and other scientific documents; and Comprehensive Dissertation Abstracts is a definitive subject, title, and author guide to virtually every dissertation accepted at an accredited American institution since 1861 and to thousands of Canadian dissertations as well.

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Although the journal articles are not available from EDRS, these journals can be found in university and large research libraries throughout the United States. Documents listed with UMI order numbers can be obtained from University Microfilms International, Article Reprint Department (CIJE), 300 North Zeeb Road, Ann Arbor, Michigan 48106.

Bibliography

1. American College Testing Program. Bias in the Uses of Educational Assessment. In Assessing Students on the Way to College, Volume I. Iowa City, Iowa: The American College Testing Program, 1973.

This chapter is divided into two sections, each dealing with problems of bias in a category of uses of the American College Testing (ACT) Assessment Program data. The first category involves uses of the ACT Assessment in selective college admissions and possible selection bias for different racial-ethnic groups, sex groups, age groups, and groups of different socioeconomic status. The second category examines possible bias in counseling uses of the ACT Assessment for the same groups. An additional section is concerned with possible bias in interpretive and selection uses of the self-reporting sections of the ACT Assessment.

2. Association for Measurement and Evaluation in Guidance. Commission on Sex Bias in Measurement. A Case History of Change: A Review of Responses to the Challenge of Sex Bias in Career Interest Inventories. Measurement and Evaluation in Guidance, v10 n3, pp143-152, October 1977.

The Commission surveyed the publishers of 11 popular interest inventories for steps planned or taken to eliminate sex bias from their instruments.

A number of changes have been made in the American College Testing Interest Inventory, Hall Occupational Orientation Inventory, Kuder Occupational Interest Survey, Kuder General Interest Survey, Minnesota Importance Questionnaire, Ohio Vocational Interest Survey, and

Strong-Campbell Interest Inventory, and research has been undertaken to determine the best way to handle the still-unresolved technical problems. It is concluded that a concern first formulated at the level of popular opinion has been translated into professional action, public policy, and actual observable change.

3. Ash, Philip. The Implications of the Civil Rights Act of 1964 for Psychological Assessment in Industry. American Psychologist, v21 n8, pp797-803, 1966.

"In prohibiting discrimination on the basis of race, color, religion, sex, or national origin, the act sets forth a number of employer actions, the commission of which constitute unlawful employment practices...." The Tower Amendment to the Civil Rights Act of 1964 says in part, "It shall not be...an unlawful employment practice for an employer to give and to act upon the results of any professionally developed ability test, provided that such test, its administration, or action upon the results is not designed, intended or used to discriminate because of race, color, religion, sex, or national origin." The implications of the act, and particularly of the Tower Amendment, are discussed, as is possible court interpretation. Questions concerning the nature of ability tests are considered. Psychologists have responsibility for education, research, sound professional conduct, ethical action, and recognition of the limitations of testing.

4. Birk, Janice M. Interest Inventories: A Mixed Blessing. Vocational Guidance Quarterly, V22 n4, pp280-286, June 1974.

This article selectively reviews studies and position papers dealing with sex-role bias in using interest inventories with women. Bias against females has appeared not only in patterns of interest constructed for women as opposed to those constructed for men, especially in the Strong Vocational Interest Blank, but also in guidelines issued to counselors for interpreting patterns. In addition, stereotypes held by both counselors and clients have limited the occupations females are encouraged to consider. To correct these problems, inventories should offer the full range of occupations to both sexes, and females should be encouraged to choose from the whole range.

5. Birk, Janice M. Reducing Sex Bias--Factors Affecting the Client's View of the Use of Career Interest Inventories. Minneapolis, Minn.: Aries Corp., March 1974. 49p. ED 095 367.

Research related to the issues of sexual bias in the use of interest inventories is reviewed, particularly from the client's view of the career-exploration process. Since counselors refer to manuals and interpretive materials to obtain norming information and guidelines for score interpretation, these sources are examined and found to contain both explicit suggestions and subtle implications which, if followed by the counselor, could have deleterious effects on female clientele. Recommended changes for manuals and interpretive materials are aimed at maximizing the counselor's effective use of interest inventories on the client's behalf. It is a complex issue, since other factors interact with interest-inventory results.

Corrective interventions suggested include: (1) alter prevocational aspirations; (2) examine the development of interests, particularly women's vocational goals; (3) provide counselors with an awareness of sex roles and strategies to counter stereotypes through workshops; and (4) revise interest measures. High priority is given to the immediate revision of inventory manuals.

6. Borgen, Fred H.; Helms, Janet E. Validity Generalization of the Men's Form of the Strong Vocational Interest Blank with Academically Able Women. Journal of Counseling Psychology, v22 n2, pp210-216, May 1975.

The men's form of the Strong Vocational Interest Blank was used to study the validity of a single inventory for predicting college majors and career choices based on precollege interest. Differentiations of career choices and major-field choices were compared for men and women. Subjects included 570 women and 1,031 men in 16 major fields, and 452 women and 780 men in 10 career fields. All study participants were National Merit Scholars in 1966. The results, in general, suggest that a single form of the SVIB is potentially feasible for predicting college major and career choices for both women and men.

7. Boyd, Vivian S. The Linguistic Structure of the Self-Directed Search: A Study in Sex-Role Stereotyping. Ph.D. dissertation, University of Maryland, 1975. (UMI Order No. 75287-33, 186p.)

This study examined whether neutralization of masculine-toned terminology in the Self-Directed Search (SDS) resulted in significantly different performance of female test takers along a number of selected dimensions. One hundred thirty-three female college students completed the standard SDS while an experimental group of 133 female college students completed a modified version. While the SDS assessment results did not differ significantly, there were significant differences in the subjects' perceptions of sexual equality of the two forms. See the following entry for further information.

8. Boyd, Vivian S. Neutralizing Sexist Titles in Holland's Self-Directed Search: What Difference Does It Make? Journal of Vocational Behavior, v9 n2, pp191-199, October 1976.

Sex-role stereotyping in the linguistic structure of Holland's Self-Directed Search (SDS) was examined. A revised SDS was constructed that removed all masculine-toned terminology from the items and test-taking instructions and affixed the letters M/F and F/M to all occupational titles and terms commonly perceived as gender specific. Subjects were 266 lower-division female students at a large state university; 133 subjects completed the standard SDS, and 133 completed the revised form. Following SDS assessment, subjects rated their inventory with respect to perceived sexual equality. Comparison variables included daydreams, occupations' scores, summary codes, and subsequent occupational choices. Occupational choices at each stage of the assessment process were classified as nontraditional or

traditional choices for women. Across all indices derived from the standard and revised versions of the SDS, there were no significant differences in subjects' performances. Subjects did perceive the two inventories differently, however, with subjects who completed the standard SDS viewing it as slightly less equitable.

9. Campbell, David P. Reaction to Schlossberg and Goodman's "Imperative for Change." Impact, v2 n1, pp29-31, 1972. (Entire issue reprinted in ED 071 012.)

A brief history of the Strong Vocational Interest Blank (SVIB) is presented with a description of some of the proposed revisions.

10. Campbell, Jean. Differential Response for Female and Male Law Students on the Strong-Campbell Interest Inventory: The Question of Separate Sex Norms. Journal of Counseling Psychology, v23 n2, pp130-135, March 1976.

Differential responses to female- and male-lawyer items on the Strong-Campbell Interest Inventory (SCII) were examined for 35 female and 67 male law students. While there was systematic difference in responses between the sexes, the pattern of differential response on items unique to one or the other of the scales indicates that this difference would not affect scores if the scales were combined. Furthermore, the nature of the relation between the occupational groups and between the occupational and in-general groups on these items suggests that combined scales are feasible. Because there is

an implicit bias in maintaining separate sex scales, it is suggested that the SCII be considered an intermediate step to a combined instrument.

11. Closs, S. J. The APU Occupational Interests Guide and the Sex Discrimination Act. British Journal of Guidance and Counseling, v4 n2, pp181-194, July 1976.

Because the APU Guide has separate forms for males and females, there is some controversy regarding its legal standing under the British Sex Discrimination Act. This paper defends the use of separate forms on the basis of demonstrated sex differences in interests. The definition of discrimination given in the Act is discussed with respect to the structure of the Guide and its use. Arguments are made to show that it is not discriminatory, nor does it foster or maintain antifeminist attitudes.

12. Coffman, W. E. Sex Differences in Responses to Items in an Aptitude Test. Eighteenth Yearbook, National Council on Measurement in Education, 1961.

The performances of a sample of men and a sample of women on a test of verbal aptitude were compared, taking into account two problems: (1) the development of a method of making meaningful comparisons between them; and (2) determining if there are subcategories of items showing sex differences in favor of men or women. Three hundred women and 370 men were selected from a March 1954 administration of

the Scholastic Aptitude Test (SAT), and 60 items were analyzed for their responses. It was found that of nine items classified under mechanical, knowledge, science, or business, men did better in eight; of 10 items describing personal feelings or personality characteristics, nine were easier for the female sample. It was concluded that words regarding things were more "specific," and less apt to show up on a verbal aptitude test than words regarding people, which were judged to be more "general." Women, who generally score better than men on verbal aptitude tests, may do so because words related to people appear to be easier for them.

13. Cole, Nancy S. Bias in Selection. Journal of Educational Measurement, v10 n2, pp237-255, Summer 1973.

Six models of selection bias are described: the quota model, the regression model, the Darlington model, the employer's model, the Thorndike model, and the equal-opportunity model. Applications of the models are compared when used for selection in various cases; situations varying parallel versus nonparallel regression lines and differences in slopes and intercepts for majority and minority groups. Reversals of minority and majority data are examined. The equal-opportunity model is held to be fair to students and to the institution, since it does not dramatically reduce the expected success rate among those selected.

14. Cole, Nancy S.; Hansons, Gary R. Impact of Interest Inventories on Career Choices. Minneapolis, Minn.: Aries Corp., 1974. 37p.
ED 095 370.

Which of the dissimilarities among men's and women's likes and dislikes are directly related to job satisfaction or dissatisfaction? New problems for interest measurement--the question of applicability to women of approaches based on men, and the questions raised by the current dramatic break in the socialization process of women--are examined in terms of the two types of interest measurement surveyed: one relies on stable socialization and is heavily tied to the past; the other does not take into account the effect of experience on interests. The contemporary view of career guidance emphasizes continuing exploration of career and self, and appropriate use of interest inventories with women may lead to focused exploration in totally new areas.

15. Cole, Nancy S. On Measuring the Vocational Interests of Women. Iowa City, Iowa: American Coll. Testing Program, Research and Development Div., March 1972. 16p. ED 060 821.

It is the purpose of this paper to consider the possibility of eliminating the pattern of women entering only traditionally women's vocations by examining the structure of women's interests in terms of inventory scales and occupational groups; to compare this structure with that found for men; and to suggest what inferences can be made from women's interests regarding the entire career spectrum. The results indicate that when women's interests are compared with those of other women, the resulting structure of interests is essentially the same as that found for men. In addition, occupations that are

pursued by both men and women tend to fit in similar positions within the structure for both men and women. It is recommended that women be provided with this information so they may be aware that there are more diverse career options open to them than are now commonly available.

16. Cole, Nancy S. On Measuring the Vocational Interests of Women. Journal of Counseling Psychology, v20 n2, pp105-112, January 1973.

The interest patterns of women selecting various occupations and the interrelationships of scales on the Strong Vocational Interest Blank, the Kuder Occupational Interest Survey, Holland's Vocational Preference Inventory, and the ACT Career Planning Program were analyzed. When women's interests were compared with those of other women, the resulting structure of interests was essentially the same as that found for men. In addition, occupations that were pursued by both men and women tended to fit in similar positions within the structure for both men and women. It is suggested that these findings could be used to provide women with information about more diverse career options than are now commonly available.

17. Cole, Nancy S. Unresolved Technical Interests in Fair Interest Measurement. 1974. 14p. ED 095 436:

The problem of sex differences in interest measurement involves many technical issues and procedures. The purposes of this paper are to provide a description of the technical problems involved in constructing, scoring, and interpreting interest measures as related

to sex differences and to suggest guidelines within these technical issues that will help eliminate any factors that may influence a person to limit--or to cause others to limit--his or her career considerations solely on the basis of gender. The technical issues revolve around sex differences in item responses; appropriate composition by sex of reference or norm groups; what to do about occupations involving primarily one sex; and interpretive and explanatory materials related to the above. Additions to the NIE guidelines on suitable technical procedures for different types of interest inventory scales are provided as well as helpful interim procedures for use when changes in current procedures require a long period of time for implementation.

18. Creaser, James; Carsello, Carmen. Comparability of Cross-Sex Scores on the Strong-Campbell Interest Inventory. Journal of Counseling Psychology, v23 n4, pp360-364, July 1976.

Scores on the male and female scales of the Strong-Campbell Interest Inventory were compared for 310 males and 215 females entering college to evaluate the claim that the male scale should be used with female counselees. For the 37 same-name occupations, the results show many substantial differences between scores on the two scales; not more than half the correlations between scales could be considered high, and differences in scores for individuals ranged as high as 44 standard-score points. Both male and female participants tended to score higher on the opposite-sex scales. The results suggest that

possible interest in an occupation should be inferred based on same-sex norms rather than opposite-sex scores.

19. Crump, Carol B. Workshop on Sex Bias and Sex Fairness in Career Interest Inventories. Report of Proceedings, March 6-8, 1974.

Washington, D.C.: National Institute of Education (DHEW), Career Education Program, November 1974. 89p. ED 103 787.

This document contains abstracts of papers from a workshop resulting from the Office of Education report, "A Look at Women in Education: Issues and Answers for HEW." This report charged that a particular career interest inventory was sex biased, but no operational definition of sex bias was given, the issues involved were not discussed in depth, and no solutions were offered. In planning sessions held prior to the workshop, a set of tentative guidelines for determining sex bias and sex fairness in career interest inventories was refined, a list of workshop participants was developed, and the workshop itself was outlined. This report of the workshop proceedings provides the reader with the background of the workshop, an overview of the sessions, and the effects of the guidelines and other materials resulting from it.

20. Cubit-Swoyer, Donna. Workshop in Providing Equal Career Opportunities. Trenton: New Jersey State Dept. of Education, Division of Vocational Education, June 1977. 133p. ED 140 061.

One in a series of curriculum documents in career education, this manual provides plans, resources, and materials for training counselors and

teachers to provide sex-fair career counseling and programs. Objectives for a workshop are presented, and directions, including a flowchart, are given for its preparation. These are followed by detailed workshop plans for conducting eight hours of training (in either one, two, or four sessions) on the following topics: legislation, sex-fair tests, texts, occupational information, and techniques and resources for programs. Media resources and extensive materials are listed with company or organization names, addresses, and publication titles (plus cost, if any). Also listed are names and addresses of in-service trainers or organizations and persons able to assist in securing qualified trainers. These are given by region and individual states with a special page devoted to trainers located in New Jersey. Attitude-exploration activities are presented with guidelines for assessing sex bias in career interest inventories and in educational materials. New Jersey equal-education legislation is appended as well as excerpts from the 1974 Federal Register outlining federal rules and regulations on educational programs and sex nondiscrimination. Suggested questions for evaluating a workshop complete the manual.

21. Datta, Lois-Ellin. He and She: Sex Fairness in Selection and Guidance Based on Educational Testing. Washington, D.C.: National Institute of Education, July 1977. 19p. ED 143 682.

Debate on criteria for assessing sex fairness in occupational interest inventories has centered on four issues: (1) whether interpretational

material should stress the prospect of social change or the reality of present occupational segregation by sex; (2) the appropriate form for reporting scores (raw, pooled sex norms, or separate sex norms); (3) the feasibility of developing measures that are reliable, valid, and have low or no correlations with gender in item-level preferences; and (4) whether the criterion for validity should be prediction or exploration, and involve hit rates which are weighted or unweighted for current occupational frequencies. Recent developments indicate that valid, reliable measures that are not correlated with gender can be developed if the criterion is exploration of compatible occupations and hit rates are considered independently for each major category. Debate on the criteria for sex fairness in occupational interest inventories may be shifting from the technical aspects of construction and validation to personal judgments about the social utility of restricting occupational exploration to conform to current distributions by gender versus the social utility of encouraging exploration of nontraditional careers.

22. Denker, Elenor Rubin; Tittle, Carol Kehr. "Reasonableness" of KOIS Results for Re-Entry Women: Implications for Test Validity. Educational and Psychological Measurement, v36 n2, pp495-500, Summer 1976.

The purpose of this study was to investigate the reaction of re-entry women to the Kuder Occupational Interest Survey DD (KOIS) with the view of establishing face validity of its scales. Fifty-six women who were participating in a program leading toward entering a community college took the KOIS and, upon receipt of their results, rated the

"reasonableness" of the individual sets of scales. Over 70 percent of the subjects agreed or strongly agreed with the statement that their KOIS results seemed reasonable on each of the sets of scales. No one "strongly disagreed" with any scale set. High raters were compared to low raters. Significant differences were found on mean lambda scores (especially on the Occupational Scale-Female Norms) and on the Verification Scale. Results are interpreted in terms of social desirability and its effect on the face validity of test results.

23. Dewey, Cindy Rice. Exploring Interests: A Non-Sexist Method. Personnel and Guidance Journal, v55 n5, pp311-315, January 1974.

This journal article describes the Non-Sexist Vocational Card Sort for use in counseling both men and women. This technique is less sexist than traditional approaches because: (1) the same vocational alternatives are offered to both men and women; (2) the genders of the occupational titles have been neutralized; and (3) the counselor and client can explore sex-role biases as they emerge in the counseling session.

24. Diamond, Esther E., Ed. Issues of Sex Bias and Sex Fairness in Career Interest Measurement. McLean, Va.: Aries Corp., 1975. 239p. ED 113 609.

A series of papers and guidelines, resulting from the National Institute of Education (NIE) Career Education Program's study of sex bias and sex fairness in career interest inventories, is presented in

the document. Intended for publishers and users of career interest inventories and related services and materials as standards for evaluating sex fairness, the guidelines are presented in the following sections: the inventory itself, technical information, and interpretive information. Eleven papers are presented that deal with issues identified by the NIE Career Education Program Planning Group study. Chapter topics include: (1) the impact of interest inventories on female career choices; (2) the use and evaluation of interest inventories and simulations; (3-4) technical aspects of interest measurements; (5) the face validity of interest measures; (6) factors affecting a client's view of interest inventories; (7) sex bias in terms of black women; (8) interest inventories and the mature woman; (9) the cost of developing interest inventories; (10) counter-based guidance-systems analyses; and (11) legal implications of sex bias in interest inventories. Each paper contains an abstract and is discussed in the overview. Background material is supplied in the foreword, and the book is indexed.

25. Diamond, Esther E. The Masculinity-Femininity Scale in Interest Measurement: An Idea Whose Time Has Passed. September 1972. 11p. ED 069 795.

The author discusses the lag that exists between traditional measures of masculinity and femininity in occupational interests and the changing role of women in the world of work. She states that most masculinity-femininity scales in use today measure the degree of conformity with socially and culturally determined sex roles. Scales

discussed are the Strong Vocational Interest Blank (SVIB), the Kuder Occupational Interest Survey (KOIS), the Minnesota Vocational Interest Inventory, and the Kuder Preference Record--Occupational Form D.

What is needed in the way of practice and further research is given as follows: (1) further research on the question of whether separate norms should be developed for the same occupation on the basis of sex; (2) newer norm group data should be developed for all inventories; (3) the term Masculinity/Femininity as applied to psychological scales, such as measures of interest, should be rejected as an idea whose time has definitely passed; and (4) women's or men's career options should not be limited because of the lack of available data.

26. Diamond, Esther E. Minimizing Sex Bias in Testing. Measurement and Evaluation in Guidance, v9 n1, pp28-34, April 1976.

While much attention has been paid recently to the technical aspects of sex bias in interest measurement, criticism and recommendations with reference to cognitive measurement, such as achievement testing, have been limited mainly by the use of sex-stereotypic language and content. Three principal sources of sex bias in measurement are society itself, the extent to which the test content is biased, and the biased use of the test results. Whatever the cause, intervention seems necessary if equality of opportunity is to be achieved. As one type of intervention, a model is suggested for eliminating possible bias at the time specifications for item writing are being prepared and in the subsequent pretest analysis.

27. Diamond, Esther E. The NIE Project on Sex Bias and Sex Fairness in Career Interest Measurement: Prologue and Epilogue. Humanist Education, v14 n4, pp222-230, June 1976.

Since no commonly accepted definition of sex bias or sex fairness as applied to interest inventories existed in 1973, the Career Education Program of the National Institute of Education launched a study to examine the technical and social issues involved in career interest measurement, to develop a set of guidelines, and to identify and advocate research on a number of specific issues. The guidelines that were developed deal with three principal aspects of career interest inventories: the inventory itself, technical information, and interpretive information. The demand for copies of the final report is presented as evidence of the project's impact.

28. Diamond, Esther E. Occupational Interests: Male-Female or High Level-Low Level Dichotomy? Journal of Vocational Behavior, v1 n3, pp305-315, October 1971.

The relation between occupational level and masculine and feminine interests was investigated to determine whether sex differences in interests would be minimized at the high end of the occupational continuum and dichotomized at the low end. Subjects were scored on four experimental scales derived from Kuder Occupational Interest Survey scales: male, female, high occupational level, and low occupational level. Scores were subjected to several analyses, including comparisons of mean differences within and across groups

and an errors-of-classification study. In general, results were consistent with the proposed hypothesis. A strong, unpredicted relation, for the two male groups between high occupational level and female interests was hypothesized to be the result of a verbal factor common to both sets of interests.

29. Dia, Sally; Carifia, James. A Note on Sex Differences in Achievement Motivation. Educational and Psychological Measurement, v37 n5, pp513-17, Summer 1977.

This study seriously questions the validity of using separate measurement scales for males and females. A variety of data is presented to support the case made against this practice.

30. Dickstein, Ellen B.; Seymour, Martha W. Effect of the Addition of Neutral Items on IT Scales Scores. Developmental Psychology, v13 n1, pp79-80, January 1977.

It is hypothesized that adding neutral items to the IT scale for children will eliminate bias in boys' scores by allowing them reasonable alternatives to stereotypically masculine items.

31. Donlon, Thomas F.; et al. The Consequences of Sex Bias in the Content of Major Achievement Test Batteries. Measurement and Evaluation in Guidance, v11 n4, pp202-216, January 1979.

Many expectations concerning performance on educational and psychological tests are sex-stereotyped. Females, for example, are expected to do

better on verbal tests, while males are expected to do better on mathematics tests. These expectations are being reevaluated in terms of the cultural influences that may underlie them.

32. Donlon, Thomas F. Content Factors in Sex Differences on Test Questions (RM-73-28). Princeton, N.J.: Educational Testing Service, 1973. 19p. Available only from Publications Office, Educational Testing Service, Princeton, NJ 08541.

This paper examines item-analysis data for the Scholastic Aptitude Test population of May 1964. Following Coffman's focus, an analysis of extreme items was made. For the total test, there were no differences between men and women on the verbal, and men were superior on the mathematical. A practical criterion of .07 (percent passing the item) or greater was chosen to identify items differing between men and women. On the verbal, 8 items favored men and 11 favored women. Women did better than men on only two items. Analysis of items by content led to the conclusion that the approximate 40-point difference in scale scores between the sexes on this test is a function of the content formula. If the content were limited to algebra, the difference could be decreased to about 20 points. These analyses do not rule out the possibility that items on which either men or women do well may have some property in common other than the apparent masculine or feminine content.

33. Donlon, Thomas F.; et al. Performance Consequences of Sex Bias in the Content of Major Achievement Batteries. Final Report. Princeton,

N.J.: Educational Testing Service, July 1977. 149p. ED 151 415.

The content of selected major achievement tests is examined for bias in the frequency of references to the male and the female sex. The performance of males is contrasted with that of females on each item considered, and the relationships between item content and performance differences are surveyed. The tests used in this study include the Metropolitan Achievement Test, the Iowa Tests of Basic Skills, the California Achievement Tests, and the Sequential Test of Educational Progress. Grades 2, 5, 8, and 10 are analyzed. Major findings include: (1) females perform better on items containing female references; (2) both males and females perform less well on items with a greater number of references; (3) consistent patterns occur regardless of whether the content variable studied is the total number of references or the total number of actors; (4) items with more than the average number of references do not differentiate ability levels within sex groups as sharply as do other items; and (5) both sexes are similar on such noncontent factors as omitting or rate of work. A Manual for Identifying Sex Bias Explicit in the Content of Test Items is appended.

34. Dwyer, Carol A. Test Content and Sex Differences in Reading.

Reading Teacher, v29 n8, pp753-757, May 1976.

Many past studies have shown that the pattern of sex differences found in test results varies with the proportion of certain types of

test items. For example, reading-comprehension items give girls the biggest advantage, while vocabulary items give the greatest advantage to boys. A balance can be found so that sex differences "disappear," and, in fact, the Scholastic Aptitude Test-Verbal has evolved to this point in recent decades. After pointing out that no parallel balancing has been attempted in the quantitative portion of the SAT, the author warns that our aim must be to improve a student's skills, not merely to arrange test content so that an illusion of higher achievement is created.

35. Dwyer, Carol A. Test Content in Mathematics and Science: The Consideration of Sex. April 1976. 9p. ED 129 886.

A traditional generalization is that girls are superior in verbal skills, and boys show superiority in mathematics and the sciences. But most test specialists now concede that there is almost more exception than rule in this generalization, and that individual test items may actually modify observed patterns of sex differences. Sex-role stereotyping and the issue of male/female representation in test content have often been glossed over with respect to mathematics tests and, to a lesser extent, with respect to science tests. The effects of item type and item context on sex-differentiated performance are better documented. The balancing of these two aspects of test content is important to remember in the construction of tests. It is also important to have a close match between the content of test items and the curriculum or aptitude areas they are intended to

measure. There are several sets of useful guidelines available for eliminating sexist content in these materials, but developers should always be wary of bias toward either sex. The issue of performance-related test content must remain a completely separate one to be resolved in psychometric rather than value-oriented terms.

36. Ellsbury, Susan J. An Analysis of Sex Stereotypes in the Edwards Personal Preference Schedule. Ph.D. dissertation, Indiana University, 1976. (UMI Order No. 76-21506, 125p.)

This study determined that the Edwards Personal Preference Schedule contains items whose content may connote sex roles to people taking the inventory. If so, the respondent might select or avoid a response based on sex-role identification rather than on the basis of the scale trait. The study also found that items can be developed to eliminate sex stereotypes without disrupting the internal consistency of the scales in which the items were originally placed.

37. Elton, Charles F.; Rose, Harriet A. A Vocational Interest Test Minus Sex Bias. Journal of Vocational Behavior; v7 n2, pp207-214, October 1975.

Vocational Preference Inventory (VPI) responses from 110 males and 180 females were subjected to a Rasch item analysis. After the elimination of 22 items that did not fit the model, a sex-free form of the VPI was obtained. Group-interest scale scores are presented for each of the Holland scales, and data are produced that indicate that no violence was done to the Holland coding system.

38. Equal Employment Opportunity Commission. Selected Bibliography on Fair Employment. Washington, D.C.: Equal Employment Opportunity Commission, 1976. 13p. . ED 128 737.

This select bibliography lists books, government documents, journal articles, monographs, and legal citations about fair employment. The majority of entries are related to the employee selection and testing process and its ramifications. Titles are organized by topic: guidelines and standards, statistics, selection, legal aspects of testing, overviews, reviews, job analysis, test fairness, licensing and certification, and significant testing cases. Most entries have been published since 1969.

39. Evans, Hannah I.; Seperekas, Nicole B. Reply to "Sex Differences in Adaptive Styles." Journal of Genetic Psychology, v127 n2, pp317-318, December 1975.

This paper criticizes the Future Events Test and conclusions drawn from it on the grounds that the test contains sex-biased items and that locus-of-control scales show no reliable sex differences.

40. Faggen-Steckler, Jane; et al. A Quantitative Method for Measuring Sex "Bias" in Standardized Tests. Journal of Educational Measurement, v11 n3, pp151-161, Fall 1974.

The item content of eight standardized tests (California Achievement Tests, Iowa Test of Basic Skills, Iowa Tests of Educational Development, Metropolitan Achievement Tests, Sequential Tests of Educational

Progress, SRA Achievement Series, Stanford Early School Achievement Tests, and the Stanford Achievement Tests) was examined for sex imbalance as well as for stereotyped representations of women. All eight of the standardized tests exhibited considerable sex imbalance, and this imbalance was not due to the language restrictions of English. In 19 of the 27 batteries analyzed, males are referred to more than twice as often as females. In only one battery were females referred to more often than males.

41. Fitzgerald, Laurine E.; Fisher, B. Jeanne. Legal Issues: Status Report. Minneapolis, Minn.: Aries Corp., February 1974. 21p.
ED 095 366.

The paper provides information concerning legal issues relating to sex bias that may be inherent in the present popular usage of standardized interest-measurement instruments. It focuses on current laws and guidelines and the possible implications of judicial decisions that relate to sex bias and interest testing in education and employment settings. No test case has included or noted interest-measurement instruments; employing the method of "doctrine of analogy," however, indicates that inferences regarding the legal issues have been drawn. To the extent that interest inventories support stereotypic sex and occupational linkages or restrictions, the tests are biased; should a sex-biased instrument discourage an applicant from educational or employment opportunity, or be used in a negative decision in the case of the applicant because of differentiating scales or inappropriate

sex-based normative data, then it would appear that the spirit of the law was denied. Two remedies seem clearly indicated: (1) interest tests should be revised; greater specificity is needed regarding the use of interest tests and the applicant's stake in the decision-making process; and more specific guidelines should be developed to support Title IX of the Education Amendments; and, (2) the development of future laws should definitively state the dimensions of concern.

42. Flaughner, Ronald L. Bias in Testing: A Review and Discussion. TM Report No. 36. Princeton, N.J.: ERIC Clearinghouse on Tests, Measurement, and Evaluation, December 1974. 10p. ED 099 431.

Recent empirical evidence concerning sex and racial bias in testing is discussed in terms of three primary sources of bias: (1) content of the test itself, (2) atmosphere in which the test is administered, and (3) how the test results are used. Test content that is demonstrably more difficult for one group than another should be eliminated in any setting in which equal difficulty is assumed, or, perhaps more important, the biased content should be examined closely for possible causes of the difference, leading to modification of educational practices for the low-scoring groups. Special care should be taken routinely to see that minority groups are made to feel comfortable and are not intimidated by their surroundings. Regarding fairness in test use, methodological developments undermining the traditional statistical model of fairness previously accepted without question are described in some detail. The "new measures"

approach to test bias is seen as essentially an abandonment of, or a reduced emphasis on, the traditional measures of status of aptitude and achievement.

43. Frazer, William G.; et al. Bias in Prediction: A Test of Three Models with Elementary School Children. Journal of Educational Psychology, v67 n4, pp490-494, August 1975.

This paper explores the differences among the traditional single-equation prediction model of test bias, the Cleary, and the Thorndike model, in a situation involving typical educational variables with young female and male children.

44. Gold, Ann M. The Use of Separate-Sex Norms on Aptitude Tests: Friend or Foe? Measurement and Evaluation in Guidance, v10 n3, pp162-170, October 1977.

Separate-sex norms are no longer applicable for the interpretation of aptitude-test scores. The Differential Aptitude Tests must adopt combined-sex norms in order to remain an effective measurement and counseling instrument.

45. Goodman, J. S.; Novarra, V. A. The Sex Discrimination Act of 1975: A Role for Psychologists. Bulletin of the British Psychological Society, v30, pp104-105, April 1977.

Instances of possible sex discrimination under British law can involve complex issues of psychological testing that should be

handled by psychologists. The question of whether or not discrimination occurs in the design or use of a test is an empirical one, and the role of the psychologist is to make all necessary considerations in prescribing the test's validation procedures.

46. Gottfredson, Gary D. A Note on Sexist Wording in Interest Measurement. Measurement and Evaluation in Guidance, v8 n4, pp221-222, January 1976.

The hypothesis that sexist wording as opposed to gender-neutral wording lowers the scores of females on interest measures was tested using occupational titles with a sample of 94 high school girls. Results lend no support to the hypothesis.

47. Gottfredson, Gary D.; Holland, John L. Vocational Choices of Men and Women: A Comparison of Predictors from the Self-Directed Search. Journal of Counseling Psychology, v22 n1, pp28-34, January 1975.

Several predictors of occupational choice derived from Holland's theory of careers were examined. A hypothesis that a person's competencies, activities, self-estimates, interests, and vocational choices can be organized by a six-category typology to understand and predict subsequent choice was tested. Samples of 894 men and 989 women took the Self-Directed Search upon entering two colleges and reported their occupational choices one or three years later. All hypotheses received support, although the predictive efficiency

varied. Current vocational choice was the best predictor of later choice, and scores based on sex-specific norms were less efficient predictors than raw scores. The findings support both the theory and validity of the Self-Directed Search assessment for men and women.

48. Graf, Richard G.; Riddell, Jeanne C. Sex Differences in Problem Solving as a Function of a Problem Context. Journal of Educational Research, v65 n10, pp451-2, July-August 1972.

Male and female college students were given a mathematical problem to solve with half of the students given a problem with content appropriate to the masculine role and the other half given a problem with content appropriate to the feminine role. The dependent measures were the number of subjects who reached a correct solution, the time it took them to reach it, and how difficult they perceived the problem to be. Sex differences in problem-solving speed (but not accuracy) were observed for the masculine problem but were absent for the feminine problem. Results were accounted for in terms of sex differences in perceived difficulty of the problems.

49. Gump, Janice Porter; Rivers, L. Wendell. The Consideration of Race in Efforts to End Sex Bias. Minneapolis, Minn.: Aries Corp., 1973. 50p. ED 095 364.

The paper examines the need for sex-fairness efforts for minority women (particularly black women) and relates that need to the measurement of vocational interests. Data are presented portraying the

black woman as more likely to enter the labor force, more interested in doing so, more likely to work full time and continuously, and more necessary to the financial welfare of her family than her white counterpart. It is equally true that black women choose occupations traditional for women, are motivated perhaps more by a sense of responsibility than by need for achievement, and are much more traditional in their sex-role attitudes. Thus, concern for the occupational options of white women can be no less directed towards them than towards any other women. Some of the technical aspects of the problem of preparing assessment instruments for minority groups are examined in order to emphasize the need for further work in this area. The basic contention is that there may be a discontinuity or mismatch between the interest structures developed from the background of minority females and those possessed by the norm groups used to validate an interest scale.

50. Hansen, Jo-Ida C. Costs of Developing Interest Inventories and Implications for Change. Minneapolis, Minn.: Aries Corp., February 1974. 34p. ED 095 365.

The paper surveys the costs of interest-inventory revision and concludes that, ultimately, the elimination of sex bias in career interest inventories will depend on project funding. After the issues of criterion sample, item pool, instructional orientation, interpretation, and legality have been settled, researchers and publishers will have the guidelines necessary for removing, or at

least minimizing, sex bias in the use and interpretation of interest inventories. Then, attention must focus on the issue of finances. Funding must include a yearly \$75,000 to \$80,000 allowance for personnel. Construction of one empirical occupational scale costs \$1,900 to \$2,000, and complete revision of an interest inventory costs a minimum of \$270,000, with publishing expense bringing the total to \$385,000. Three years is the absolute minimum estimate for a complete revision. Financial support for researchers must increase. Possible funding sources include publishers, universities, scoring services, the federal government, professional organizations, and special interest groups.

51. Hansen, Jo-Ida C. Exploring New Directions for Strong-Campbell Interest Inventory Occupational Scale Construction. Journal of Vocational Behavior, v9 n2, pp147-160, October 1976.

Recent concern for eliminating Strong Vocational Interest Blank (SVIB) sex bias has focused on the current use of separately normed occupational scales for the two sexes. The present study used six basic methods of scale construction to examine the feasibility of combined-sex scales and modifications of current techniques designed to improve scale construction. To study these six methods, data from 204 male (mean age, 40 years) and 203 female (mean age, 42 years) Ph.D. sociologists were collected. Concurrent validity and test-retest reliability data indicate that combined-sex scale construction for sociologists is possible if differences in female and male occupational

interests, as measured by the SVIB, are treated as irrelevant variables in the world of work and if concurrent validity is sacrificed.

52. Hanson, Gary R.; Rayman, Jack. Validity of Sex-Balanced Interest Inventory Scales. Journal of Vocational Behavior, v9 n3, pp279-291, December 1976.

The relative effectiveness of sex-balanced and sex-restrictive raw score interest scales (American College Testing Interest Inventory and the Unisex Interest Inventory) in discriminating among vocational-preference groups was investigated. Analyses were conducted separately for 502 males in six vocational-preference groups and 878 females in five vocational-preference groups. The degree and nature of the discrimination among groups were highly similar for the two types of scales for both males and females. Centour scores derived from sex-balanced and sex-restrictive raw scores resulted in essentially the same percentages of correct classifications of group membership. Results suggest that the large sex differences traditionally found in interest-inventory items may not be a necessary concomitant of validity. Hence, interest-inventory reports that reflect these differences may unnecessarily restrict the career suggestions they provide to women and men.

53. Harmon, Lenore W.; et al. AMEG Commission Report on Sex Bias in Measurement. Measurement and Evaluation in Guidance, V5 n3, pp 171-177, October 1973.

During the 1972 American Personnel and Guidance Association national convention, a resolution was proposed that criticized the Strong Interest Vocational Blank because of sex bias. A Commission on Sex Bias in Measurement was formed to consider this problem and other cases of sex bias in the measurement of occupational interests. The commission supports the use of same items with both sexes and the use of homogeneous scales constructed from interrelated items. The final paragraphs of this article describe the modified Strong-Campbell Interest Inventory.

54. Harmon, Lenore W.; Conroe, Frances. Sex Stereotyping in Interest Items: Occupational Titles versus Activities. Measurement and Education in Guidance, v8 n4, pp215-219, January 1976.

The project described by this article attempted to determine whether there was greater sexual stereotyping in interest inventories when individuals were answering occupational titles or occupational activity items. Students (N=87) were asked to respond to the Strong-Campbell Interest Inventory (SCII), which has both types of items. Results indicated that activity items are less amenable to sex stereotyping than title items on the SCII, but it is not clear whether the form of the items or the content of the items is more influential.

55. Harmon, Lenore W. Sexual Bias in Interest. Measurement and Evaluation in Guidance, v5 n4, pp496-502, January 1973.

Bias in interest testing occurs if tests are used to encourage an individual to consider, enter, or reject an occupation or type of occupation on the basis of an irrelevant variable--sex. Bias may occur in items, scale construction, scale selection, scale norming, and in reporting scores. Popular, current interest inventories are divided into two groups, externally referenced and internally constructed, and used to illustrate potential bias. It is concluded that the externally referenced inventories, which reflect the current state of affairs and have well-established predictive powers, have, in general, the most potential for sexual bias.

56. Harmon, Lenore W. Technical Aspects: Problems of Scale Development, Norms, Item Differences by Sex, and the Rate of Change in Occupational Group Characteristics. Minneapolis, Minn.: Aries Corp., 1974. 44p. ED 095 371.

This paper considers how the technical aspects of interest measurement can contribute to sex bias, and guidelines are suggested for evaluating interest inventories for sex bias and for developing interest inventories that minimize sex bias. An overview is given of interest-measurement techniques: selecting a pool of items, developing scales, and norming the scales. The issues raised at each step are surveyed. Interpretive practices are briefly discussed. Suggestions are offered for minimizing sex bias at each of the three major technical steps in developing a new interest inventory and for its interpretation. Twelve specific

guidelines are presented in summary, including the following: the content of interest inventory items should not imply that any occupation or activity is more appropriate for one sex than for the other; scores on the same scales should be available for both men and women; norm groups for occupational scales should contain men and women in equal proportions or the effects of both groups should be statistically equalized; published interpretive materials should indicate clearly that sex norms for homogeneous scales do not imply anything about the predictive validity of the scales.

57. Harms, Robert A. The Development, Validation and Application of an External Criterion Measure of Achievement Test Item Bias. March 1978. 30p. ED 157 992.

Based on John Rawls' theory of justice as fairness, a nine-item rating scale was developed to serve as a criterion in studies of test-item bias. Two principles underlie the scale: (1) within a defined usage, test items should not affect students so that they are unable to do as well as their abilities would indicate; and (2) within the domain of a defined usage for any given test item, all students should have equality of opportunity to respond. A group of 316 twelfth-grade students rated a subset of 38 items of a reading test plus five contrived (biased) items. From this group, 247 students identified four or more of the five contrived items as biased. For the reading test, 8 of the 38 items were rated as biased by 30 to 50 percent of the 247 students. Explanations are given for the ratings of these eight items.

58. Harris, Abigail M. ETS Studies Related to Women and Education: Annotated Bibliography. Princeton, N.J.: Educational Testing Service, August 1976. 93p. ED 138 603.

Educational Testing Service (ETS) research that is relevant to the concerns of women and the educational process can be categorized into four areas: (1) research primarily about women; (2) research focusing on sex differences or similarities; (3) research that reports but does not focus on sex differences; and (4) research identifying methods of determining and correcting bias or differences. The entries in this bibliography are categorized in the same way. Section I contains research studies that used "female only" samples or that gave primary attention to the educational problems of women. Included are surveys of women students, information on various test responses of females, educational problems of women, and other bibliographies about women. Section II focuses on male/female differences or lack of significant differences in various behaviors, traits, or abilities, and in test-taking behavior or test performance. It contains studies that provide evidence of sex-linked differential treatment for males and females and investigations of male and female behavior or performance differences. Section III includes work in which data are reported and analyzed separately by sex but did not focus primarily on sex differences. Undoubtedly, this section does not include all studies of this type. Section IV, although not specifically relevant to women, is included in this bibliography because the procedures discussed in the articles can be used to help identify and control

sex bias and sex differences. The articles deal with identifying bias and performance differences in testing and in data analyses of mixed-sex groups or subgroups.

59. Harway, Michael; et. al. Sex Discrimination in Guidance and Counseling. Executive Summary. Los Angeles, Calif.: Higher Education Inst., February 1976. 50p. ED 132 503.

This report reviews sex discrimination in counseling and guidance in secondary and post-secondary education. Following a review of existing research and literature and a critical discussion of the state of knowledge in this area, the report presents implications for policy and modes to implement needed changes. The primary focus is vocational guidance and counseling. Personal-social counseling and mental health are examined briefly. Six issues are identified to reflect the areas of inquiry vital to sex discrimination in guidance and counseling: (1) socialization reflects the sex-role biases of the surrounding society; (2) the counselor-training field reflects the biases and sex-role stereotypes of the larger society; (3) counselor trainers and training rationales may reinforce existing biases or produce attitudes and values that interfere with equitable counseling practices; (4) tests (personality, interest) and other source materials used to assess clients and assist them with their educational, vocational, and personal decisions reflect sex-role biases; (5) negative outcomes of counseling are reflected in students' educational and career decisions, which indicate acceptance of sex-role stereotypes; and (6) existing counseling programs can be

freed of sex biases through implementing new approaches in counselor training and procedures. The report presents implications and recommendations in the areas of socialization, self-concept and sex-role attitudes, counselor training and characteristics, materials and theories, nontraditional counseling, and research and legislative recommendations.

60. Herman, David O. A Reply to Gold's Article on Separate-Sex Norms. Measurement and Evaluation in Guidance, v10 n3, pp172-174, October 1977.

Gold proposes that separate norms for interpreting the Differential Aptitude Test (DAT) scores of boys and girls are undesirable for three major reasons. (See entry 44.) One such argument states that separate-sex norms for the DAT appear to be more consistent with current laws than do combined-sex norms.

61. Hoffman, L. Richard; Maier, Norman R. F. Social Factors Influencing Problem Solving in Women. Journal of Personality and Social Psychology, v4 n4, pp382-290, October 1966.

A series of experiments were carried out in an attempt to determine why the problem-solving performance of women is relatively poorer than that of men. The following experimental variables were tested: (1) sex of the examiner, (2) added motivation, and (3) masculine versus feminine versions of problems. The results indicated that each variable influenced the scores on certain problems. Male

examiners' attempts to motivate subjects were successful on some problems, whereas the same attempt by female examiners had a detrimental effect. Under standard motivation, women tended to perform better when a female examiner conducted the test. The test of importance of feminine versus masculine versions of the problem showed inconsistent results, and the conclusions of previous research were not supported.

62. Holland, John L.; et al. Read Our Reports and Examine the Data: A Response to Prediger and Cole. Journal of Vocational Behavior, V7 n2, pp153-159, October 1975.

A bibliography of research reports is presented to support the view that Prediger and Cole's article is incomplete, inaccurate, and takes a simplified view of interest-inventory construction, use, and the associated problems.

63. Holland, John L.; Gottfredson, Gary D. Sex Differences, Item Revisions, Validity, and the Self-Directed Search. Measurement and Evaluation in Guidance, v8 n4, pp224-228, January 1976.

The realistic activity and competency scales in the Self-Directed Search (SDS) were revised by omitting items rarely endorsed by women or items foreign to women's experiences because of societal prohibition or educational exclusion. The revised and regular scales were then randomly assigned to 165 female and 49 male summer interns working in a federal agency. Though females' realistic scores for

both activities and competencies significantly increased with the item revisions, these items usually failed to scale properly. These results imply that the revising of scales on intuitive grounds to reduce sex differences is not a promising way to improve the vocational welfare of women.

64. Holland, John L. Some Guidelines for Reducing Systematic Biases in the Delivery of Vocational Services. Measurement and Evaluation in Guidance, v6 n4, pp210-217, January 1974.

This article proposes a general perspective for thinking about sex bias in the delivery of vocational guidance in order to suggest revisions in current practices and social actions as well as new directions for research. Biases in employment practices, media, or curriculum materials are not dealt with.

65. Holland, John L. The Use and Evaluation of Interest Inventories and Simulations. Baltimore, Md.: Johns Hopkins Univ., Center for the Study of Social Organizations of Schools, January 1974. 58p. ED 092 568.

This paper provides a general perspective for evaluating interest inventories and simulations and outlines some activities to stimulate the development of more useful inventories. Previous evaluations have been primarily instrument-specific, have relied generally on opinion rather than evidence, and have focused only on possible sex, age, race, or social class biases. Possible sex bias, especially,

has received much attention. The scientific evidence examined, however, suggests that interest inventories lack sex bias and that a strategy of seeking to improve inventory effects for every one will be more productive than focusing on specific biases.

66. Holland, John L. The Virtues of the SDS and Its Associated Typology: A Second Response to Prediger and Hanson. Journal of Vocational Behavior, v8 n3, pp349-356, June 1976.

The author reviews the evidence for the beneficial effects of the Self-Directed Search (SDS), and indicates that Hanson's and Prediger's charges of sex bias have misinterpreted the theory, that their evidence is misleading, and that other evidence indicates that males and females of the same type are similar. The virtues of raw scores are summarized.

67. Hopkins, Phyllis Fredericka. The Relative Validities of Traditionally Used Job Satisfaction and Organizational Commitment Measures Versus Women-Specific Measures for the Prediction of Female Tenure in a Male-Dominated Job. Ph.D. dissertation, Wayne State University, 1976. (UMI Order No. 77-9410, 132p.)

This study explored (1) the relative validities of traditional and women-specific measures for the prediction of female tenure in a male-dominated job, and (2) the existence of differential validity in the prediction of tenure from the traditional measures for samples of men and women. Subjects were 61 female and 61 male technical sales

personnel in an international data processing corporation. Data were also collected from the 61 branch managers of these subjects.

Traditional predictors examined were the Job Description Index (JDI) and an organizational commitment scale. Women-specific predictors designed for use in this study included measures of branch managers' attitudes toward women in sales (ATWS), women salespersons' own ATWS, and women salespersons' attitudes toward nontraditional roles for women. Data indicated a significant correlation with female tenure for only one of the nine predictors, women salespersons' ATWS. The combination of high organizational commitment and low satisfaction with pay was also found significantly related to female tenure. Data concerning women-specific predictors indicated a lack of correlation between female tenure and either managers' ATWS or women salespersons' attitudes toward a nontraditional role for women. Only these women salespersons' ATWS rather than their more general attitudes toward a nontraditional job for women related to tenure.

68. Hornaday, J. A.; Kuder, G. F. A Study of Male Occupational Scales Applied to Women. Educational and Psychological Measurement, v21, pp859-864, 1961.

The published occupational keys of the Kuder Preference Record, Form D, are for men only, although some tentative keys for women have been developed. This investigation concerns the need for separate keys for the two sexes and the desirability of separate sex norms. Specifically, the keys of this test developed for men will function

equally well in selecting women for a given occupation. Reference groups for each sex were established, comparable in socioeconomic status, geographic location, and age. The effectiveness of a given scale of the Kuder Preference Record for use with women was indicated by that scale's differentiation between women within the occupation and women in the reference group, as compared with that scale's differentiation between men in the occupation and in the reference group. It was found that there are some occupations for which separate keys and norms are not essential and an even greater number of scales for which the same key may be used if differential sex norms are given.

69. Jenks, Paul Everett. Male and Female Interest for Opposite Sex Scales of the Strong Vocational Interest Blank. Ph.D. dissertation, Brigham Young University, 1976. (UMI Order No. 77-13805, 117p.)

Seventy-four males and 72 females were each tested to determine their preference for scales of the Strong Vocational Interest Blank (SVIB) prepared for the opposite sex. The instruments used in this study were the SVIB and the Occupational Interest Survey. The results of this study suggest that there are definite male-female differences in relation to vocational interests. Females prefer scales contained only on the SVIB for Women more than the ones contained only on the SVIB for Men. Males prefer scales contained only on the SVIB for Men more than the ones contained only on the SVIB for Women. However, many of the scales contained only on the SVIB-M are useful to females,

and many of the scales contained only on the SVIB-W are useful to males. These results support provision of a broader choice of occupations for both sexes on tests of vocational interest in spite of sex differences in vocational preference.

70. Jensen, Marjane; Beck, Michael D. Gender Balance Analysis of the Metropolitan Achievement Tests, 1978 Edition. March 1978. 19p.
ED 157 925.

The purpose of this paper was to evaluate the effectiveness of interest inventories in counseling female clients. A total of eight basic questions were considered, including: (1) Are interest inventories too dependent on particular groups to be of much value in counseling? (2) What factors are associated with a change in measured interests? and, (3) Are interest inventories valid for female clients? Issues pertaining to scale development, reliability, validity, test usefulness, and profile interpretations are critically evaluated. Suggestions for improved counseling practices and needed research are offered, including: (1) a single interest inventory for men and women would benefit both counseling and research; (2) counselors must become aware of those circumstances in which it is advisable to use interest inventories and those situations in which it is probably unnecessary; and (3) attempts to facilitate the interpretation of test results to clients need to be broadened and evaluated.

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71. Linden, Kathryn W.; et al. Test Bias: Fuss 'n Facts. Measurement and Evaluation in Guidance, v7 n3, pp163-167, October 1974.

Two types of test bias are discussed: sex bias and racial bias.

Research on sex bias in interest inventories and achievement tests was reviewed; the work of the AMEG was analyzed for sex stereotyping and for use of male, female, or neuter references; and a comparison was made with the 1970 edition of the Metropolitan Achievement Test.

There was less bias in the new edition and relatively little sex stereotyping with respect to occupations, activities, and roles for females. There was, however, some sex stereotyping with respect to the display of emotions. The index of sex bias used was the ratio of male nouns and pronouns to female, with a correction for repeated references to the same person. A similar index computed the ratio of neutral personal nouns and pronouns to gender-specific words.

Illustrations were coded similarly for gender ratios and also analyzed for the comparative stature of males and females. The possible effects of sex bias and sex stereotyping in test content on test performance are yet to be determined; test developers have assumed that an even balance of male and female references would minimize test bias. The 1978 edition of the MAT is more balanced than the 1970 edition, and generally presents a less stereotyped portrayal of both sexes.

72. Johansson, Charles B.; Harmon, Lenore W. Strong Vocational Interest Blank: One Form or Two? Journal of Counseling Psychology; v19 n5, pp404-410, September 1972.

To study problems in the use of separate forms of the Strong Vocational

Interest Blank for males and females, response percentage differences between males and females in 14 occupations were computed for the 229 items common to the two forms of the inventory. On the average, 42 percent of the common items differentiated men from women in the same occupation. Further analysis indicated that a majority of these differentiating items were not incorporated into the relevant occupational scales, because the items did not differentiate the occupation from a general population. The suggested goal for the SVIB is one form with scales that do not incorporate sex differences.

73. Johansson, Charles B. Technical Aspects: Problems of Scale Development, Norms, Item Differences by Sex, and the Rate of Change in Occupational Group Characteristics (Revised February 6, 1974). Minneapolis, Minn.: Aries Corp., December 1973. 60p. ED 095 362.

The purpose of the paper is to review the Kuder Occupational Interest Survey and the Strong Vocational Interest Blank, exploring the nuances and complexities of the technical aspects in their development, their item sampling, norming, scoring, reporting of the results, and changing patterns of interests in relation to the differential treatment of sexes, and to suggest guidelines to eliminate or alleviate any potential sex-biasing factors. Using the operational definition of sex bias as any factor that may influence a person to limit career opportunities solely on the basis of gender, these areas are explored and the following recommendations, among others, are made: (1) interest inventories should not have separate forms of the instrument for males and females, and the same set of items should be used for

both, with care that an item is not inherently more applicable to one gender than the other; (2) in the development of externally based scales, every effort should be made to collect adequate samples of males and females for each occupation represented on the inventory's reporting of results; and (3) caution should be exercised against differentially including items that represent invalid sex differences.

74. Johnson, Richard W. Relationships between Female and Male Interest Scales for the Same Occupations. Journal of Vocational Behavior, vll n2, pp239-251, October 1977.

The relationships between the 37 pairs of same-named occupational scales for men and women on the Strong-Campbell Interest Inventory were studied for 1,044 female and 1,134 male college freshmen. Contrary to prior expectations, the use of the cross-sex scales reinforces sexual stereotypes.

75. Johnson, Richard W., Ed. The Use of Interest Inventories with Women: Volume 3, Number 13. Counseling Center Reports. Madison: Univ. of Wisconsin, Counseling Center, June 1970. 35p. ED 042 194.

The Commission on Sex Bias in Measurement is discussed. Issues of racial bias in intelligence and employment testing are also addressed, and several suggestions for action are presented.

76. Lockheed-Katz, Marlaine. Sex Bias in Educational Testing: A Sociologist's Perspective, Research Memorandum No. 74-13. Princeton, N.J.: Educational Testing Service, August 1974. 15p. ED 098 262.

Several criteria for assessing bias in educational tests are presented and discussed. These criteria were developed in accordance with basic notions of fairness, equality, and expanded life options for women. In terms of prescriptions for test developers, the criteria are: (1) tests should be constructed of items that contain either no sex references or equal sex reference; (2) status of males and females within the test should be equal; (3) item content should not reinforce traditional sex stereotypes. A test currently in use may be considered biased if: (1) item content in terms of male or female status or stereotypes affects the performance of males or females differentially; (2) the test predicts differentially for males and females; (3) the test is normed separately for males and females unless separate norms are used to insure a balance in selection; and (4) the test is constructed so that female futures may be separated from male futures.

77. Lockheed, Marlaine E., Comp., et al. Sex Discrimination in Education: A Literature Review and Bibliography. Princeton, N.J.: Educational Testing Service, May 1974. 90p. ED 144 976.

This bibliography focuses on studies that relate discrimination in education to sex differences in the attainment of roles and rewards, both in the educational system and in the larger society. The authors define discrimination in education as reduced access to the educational system, reduced mobility within the educational system, or reduced production of marketable skills by the educational system. This literature is reviewed in an extensive preface to the bibliography.

The 1,000-item bibliography itself contains references to published and unpublished materials that may be of use to persons interested in the problem of sex discrimination in education.

78. Lunneborg, Patricia W. Dimensionality of MF. Seattle: University of Washington, Bureau of Testing, June 1971. 26p. ED 056 061.

This study sought, through a factor analysis of 450 masculine-feminine (MF) items from nine established sources such as the Minnesota Multiphasic Personality Inventory (MMPI), to determine whether in a college sample of 523 students there were a small number of factors common to both sexes, or if the MF scale consisted of so many weak factors that the practice of giving people scores on it should be abandoned. Only 39 percent of the items discriminated the sexes. Of the nine item factors in females and ten in males, four occurred in both sexes. These MF factors were neuroticism and religiosity (feminine), and power and scientific interests (masculine). The need for four homogeneous, orthogonal MF scales based on these dimensions is requisite for any rational exploration of MF in relation to sex-role identification, achievement, homosexuality, etc.

79. Lunneborg, Patricia W.; Gerry, Marian H. Sex Differences in Changing Sex-Stereotyped Vocational Interests. Journal of Counseling Psychology, v4 n3, pp247-249, May 1977.

Cross-sex equalization of vocational interests in the college population was tested by comparing 150 female and 150 male college counselees with the "women in general" and "men in general" samples of the Strong-Campbell

Interest Inventory. College females differed little from women in general.

80. Martinez, Susanne. Sexism in Public Education: Litigation Issues. Inequality in Education, v18, pp5-11, October 1974.

Young women throughout the country have been excluded from elite academic high schools; denied access to "masculine" vocational education programs; and confronted daily with school textbooks that portray them as placid, unimaginative, and unproductive citizens. This article discusses legal cases involving sex discrimination under the topics of overt sex discrimination, vocational education, athletics, scholarships, covert sex discrimination, vocational testing and counseling, textbooks, and economic expenditures.

81. McCarthy, Karen Ann. Sex Bias in Tests of Mathematical Aptitude. Ph.D. dissertation, City University of New York, 1976. (UMI Order No. 76-11629, 145p.)

The objective of this research was to discover if differences in performance between males and females on tests of mathematical ability reflect true differences, or stem, at least in part, from some artifact of the tests themselves, such as the subject matter, content of the items, or the item selection procedures used in the test construction. Three hundred thirty-three high school students, enrolled in academic mathematics courses took a mathematics problem-solving test. One-third of the items had content of familiarity and interest to females, one-third had

content familiar to males, and one-third were neutral in content. Three conclusions were drawn from the research outcomes. First, when "best" items were selected separately for sex subgroups, these items varied from those selected for the total group. Second, the variation in items is largely explained by the differential familiarity of the item content to the sexes. Third, sex subgroup performance on mathematics problem-solving tests is higher when the test contains a large number of items with content familiar to that sex subgroup and a limited number of items with content unfamiliar to the sex subgroup. Further research is needed with a younger population and on the predictive validity of existing measures.

82. Milton, A. Sex Differences in Problem Solving as a Function of Role Appropriateness of Problem Content. Psychological Reports, v5 n4, pp705-708, December 1959.

The present investigation has as its focus the role appropriateness of the problems that subjects are required to solve. Twenty-four undergraduate men and 24 undergraduate women were given a set of 20 problems, half with content appropriate to the masculine role and half appropriate to the feminine role. The results confirmed the prediction that when the characteristics of problems are altered so as to make them less appropriate to the masculine role, sex differences in problem solving are reduced.

83. Minimizing Sex Bias in Interest Measurement through the Context of Testing and Interpretive Materials. April 1974. 10p. ED 097 361.

These guidelines deal specifically with the context in which the measurement of interest occurs and the interpretive materials made available to test users. They are classified and discussed in three categories: guidelines intended to inform the test user of possible factors influencing a sex-biased response on interest inventories; guidelines intended to eliminate overt sex bias through modifying language and examples presented in interpretive materials; and guidelines intended for research, examining the context of testing and recommending orientation sessions to help respondents examine sex-role stereotypic sets toward activities and occupations. Previous research shows that women's responses change under instructions designed to change the sex-stereotypes set; research on the psychology of women has examined career stereotypes, role stereotypes, and the motive to avoid success. Research on the effect of orientation and set should take these variables into account, and a variety of studies can be undertaken to examine the effect of modifications in testing context on the validity of interest measurement for women.

84. Murphy, Roger J. L. Sex Differences in Examination Performance: Do These Roles Reflect Differences in Ability or Sex-Role Stereotypes?

July 1977. 13p. ED 154 265.

Many academic examinations exhibit sex differences in terms of entry figures and pass rates. This fact is illustrated by a selection of statistics from the British GCE "O" level examination results for June 1976. These results are discussed in terms of three possible

causes: innate differences in intellectual functioning; sex-role stereotyping; and sex bias in the examinations themselves. The research evidence concerning sex differences in intellectual functioning seems inconclusive, and certainly does not seem to indicate any large and consistent differences. Where differences do exist, it is also impossible to assume that they are innate, as the influence of socially defined sex-role stereotyping is apparent. The link between sex-role stereotyping and sex differences in attitudes to various academic subjects also seems to be a distinct possibility. In addition to this, the evidence for the effect of attitude on performance makes the sex-role stereotyping explanation for these results a most realistic one. The possibility of sex bias in the examinations themselves was not completely ruled out, but, like the innate differences hypothesis, this did not seem to be a tenable explanation for the overall size of the difference.

85. National Institute of Education. Career Education Program. Guidelines for the Assessment of Sex Bias and Sex Fairness in Career Interest Inventories. Washington, D.C.: National Inst. of Education, July 1974. 13p. ED 098 314. (Also published in Measurement and Evaluation in Guidance, v8 n1, pp7-11, April 1975.)

The draft guidelines are the outcome of a broadly representative three-day workshop and represent a more specific definition than previously available of the many aspects of sex fairness in career interest inventories and related interpretive, technical, and promotional materials. The diverse concerns of inventory users, respondents,

authors, and publishers were taken into consideration and resolved as far as possible. The guidelines are grouped in three sections: (1) the Inventory itself, (2) Technical Information, and (3) Interpretive Information. Section 1 gives recommendations on the form and content of the interest inventory. Section 2 provides guidelines on the presentation and interpretation of materials, reporting of scores, composition of norm groups, investigation of the validity of interest inventories, and provisions for updating. Section 3 is concerned with the quality of interpretive information provided in detail in the publisher's manual and supporting materials. Footnotes and references are appended. It is believed these guideline recommendations will be valuable for developers, publishers, and users of career inventories.

86. O'Shea, Arthur J.; Harrington, Thomas R., Jr. Measuring the Interest of Male and Female Students with the SVIB for Men. Measurement and Evaluation in Guidance, v7 n2, pp112-116, July 1974.

The Strong Vocational Interest Blank (SVIB) for male profiles of 202 men and women counselor-education students was examined to determine the extent of sex differences. The differential predictive validity of the SVIB was also studied. The men and women students had similar overall SVIB profiles. However, there were distinct groups: elementary, secondary, college, and community students.

87. Peoples, Vickie V. Measuring the Vocational Interests of Women. In S. H. Osipow, Ed., Emerging Woman: Career Analysis and Outlooks.

Columbus, Ohio: Charles E. Merrill, 1975.

The construction, administration, and interpretation of the Strong Vocational Interest Blank (SVIB), the Kuder Occupational Interest Survey, and other similar tests were studied to determine the extent of their sexual bias, the predictive power of the present women's forms, and the effects of using men's forms for assessing the interests of women. Current revisions of the SVIB into a single form for both men and women are also described.

88. Plake, Barbara S.; et al. An Investigation of Differential Item Performance by Sex on the Iowa Tests of Basic Skills. March 1978. 37p. ED 161 933.

Three levels of the Iowa Tests of Basic Skills were studied to disclose the possible existence of sex bias in mathematics test items. Two mathematics tests (mathematical concepts and mathematics problem solving) and two comparison verbal tests (vocabulary and reading) were selected for analysis at three levels--grades 3, 6, and 8. Samples of 480 boys and 480 girls were selected from 48 Iowa school systems at each grade level. A three-factor analysis of variance design was used with items and sex, considered fixed factors, and school systems a random factor. Out of 341 verbal items, there were 13 that appeared to favor girls and there were 16 that appeared to favor boys. Out of 213 mathematics items, there were 8 that appeared to favor girls and 11 that appeared to favor boys. The results of the study suggest that neither the verbal nor the

mathematical subtests function differentially for male and female pupils at any of the three grade levels tested.

89. Plant, Walter T.; Southern, Mara L. Meaningfulness of Sex Differences in Selected Interest-Values Test Scores. August 1977. ED 150 515.

The research paper examines the meaningfulness of sex differences in the Allport, Vernon and Lindzey (AVL) Study of Values Scale and in selected scales of the Strong-Campbell Interest Inventory (SCII), using somewhat diverse groups of men and women. By comparing men's and women's scores on the two measures, it was found that little accuracy in prediction and interpretation is gained by considering the subjects' sex. Far more of the variance in these interest-values measures must be explained in terms other than gender and sex-role training, behaviors, and values.

90. Potkay, Charles R.; Merrens, Matthew R. Sources of Male Chauvinism in the TAT. Journal of Personality Assessment, v39 n5, pp471-479, October 1975.

Anti-female bias in clinical decision making may stem from the assessment technique or process used for gathering raw clinical data. The purpose of this study was to evaluate possible anti-female bias in the Thematic Apperception Test (TAT). Three hundred fifty-eight college students were asked to rate 17 male and 17 female figures from the TAT on cultural favorability, identification, mental health, intelligence, and achievement. Biases toward greater mental health and intelligence for female figures proved to be insufficient

counterbalances of biases toward greater cultural favorability and identification for male figures. Achievement status was rated equivalently. Potential for unfavorable clinical evaluation appeared to be greater for female TAT subjects compared with male subjects.

91. Pgttker, Janice, Ed.; Fisher, Andrew, Ed. Sex Bias in the Schools: The Research Evidence. 1977. 571p. ED 148 688. Available only from Fairleigh Dickinson University Press, Box 421, Cranbury, New Jersey 08512.

The 41 selections in this volume represent examples of the use of different research techniques to document empirically the existence of sex bias in the schools and its effects on American women and girls. The articles focus on identifying, quantifying, and verifying the existence of discrimination against females, both students and teachers, in education. The anthology contains two to five entries in each of the eight main categories: preschool and elementary education; secondary education; textbooks; role formation--occupational, social, and political; counseling; policymaking; higher education; and state and local studies of sex bias in public education. Also included are three appendices of eight sections that list statistical and differential studies and options polls.

92. Prediger, Dale J.; Hanson, Gary R. The Distinction between Sex Restrictiveness and Sex Bias in Interest Inventories. Measurement and Evaluation in Guidance, v7 n2, pp96-104, July 1974.

Recent definitions of sex bias in interest inventories focus on factors related to sex, which limit the career options considered by persons taking the inventories. This article proposes that these sex-limiting or sex-restrictive effects of interest inventories do not necessarily constitute sex bias and that sex restrictiveness is an important characteristic of interest inventories that should be considered separately from sex bias. Tentative definitions of sex-restrictive and sex-biased reporting procedures are provided and applied to Holland's Self-Directed Search, Holland's Vocational Preference Inventory, and the American College Testing (ACT) Interest Inventory for purposes of illustration. The types of evidence these definitions require of publishers are also discussed, and parallels with the Equal Employment Opportunity Commission guidelines on test bias are drawn. The authors maintain that unless a distinction between sex-restrictive and sex-biased reporting procedures is made, current definitions of sex bias in interest inventories (e.g., the AMEG and NIE definitions) can and will be successfully challenged by inventory authors, and delays in eliminating biased reporting procedures will result.

93. Prediger, Dale J.; Hanson, Gary R. Evidence Related to Issues of Sex Bias in Interest Inventories. 1976. 28p. ED 137 672.

This symposium examines recent research on sex restrictiveness as a potential indicator of sex bias. Two specific questions are addressed; (1) Can useful non-sex-restrictive raw score interest scales be

constructed? (2) Are sex-restrictive interest score reports more valid than non-restrictive reports? Research results are reported for more than 10,000 persons in six samples including ninth graders, eleventh graders, college-bound students, college sophomores, and adults. Data for two longitudinal validity studies and two concurrent validity studies are summarized. Results of this research, together with research on the construct validity of sex-restrictive and non-restrictive reporting procedures, indicate that sex restrictiveness in interest score reports is not a necessary concomitant of validity, hence it may be indicative of sex bias.

94. Prediger, Dale J.; Cole, Nancy S. It Is Time to Face Some Issues: A Response to Holland, Gottfredson, and Gottfredson. Journal of Vocational Behavior, v7 n2, pp261-263, October 1975.

After reviewing the reports suggested by Holland, Gottfredson, and Gottfredson, readers are urged to ask questions about criteria for test validity which concern: the definitions of test bias as applied to the number and types of options suggested by an interest inventory; the danger of measuring social desirability instead of interests; the theory behind raw-score reporting procedures; "equal treatment" of both sexes; and the relation between test-construction strategies and reporting strategies.

95. Prediger, Dale J.; Hanson, Gary R. Must Interest Inventories Provide Males and Females with Divergent Vocational Guidance? Measurement and Evaluation in Guidance, v11 n2, pp88-97, July 1978.

Data on reliability and validity of the sex-balanced scales are summarized along with data from previous research on sex-balanced scales and reporting procedures. Data conclude that sex differences currently found in interest-inventory scores may simply be an unfortunate legacy from an era that took traditional sex roles for granted.

96. Prediger, Dale J.; Cole, Nancy S. Sex-Role Socialization and Employment Realities: Implications for Vocational Interest Measures. ACT Research Report No. 68. Iowa City, Iowa: American Coll. Testing Program, Research and Development Div., 1975. 14p. ED 112 271. (Also published in Journal of Vocational Behavior, v7 n2, pp239-251, October 1975.)

Methods for reporting vocational interests that do and do not reflect sex-role stereotypes are examined. Interest inventory validation procedures based on the prediction of occupational preference and group membership are shown to favor inventories providing scores that reflect past sex-role stereotypes and current employment inequities. Reporting and validation procedures minimizing these shortcomings are suggested. These procedures, which are supported by past practice and recent research, result in similar distributions of career options for men and women. Finally, career-counseling problems arising from the confounding of reports of human interests with current employment realities are discussed.

97. Prediger, Dale J.; Hanson, Gary R. A Theory of Careers Encounters Sex: Reply to Holland (1976). Journal of Vocational Behavior, v8 n3, pp359-365, June 1976.

The widely divergent career options suggested to men and women by the Self-Directed Search (SDS) raw scores are noted, and misunderstandings concerning the implications of Holland's assessment procedures for his theory are discussed. Holland's defense of raw score reports of personality characteristics is found wanting, especially in light of the support provided for his theory by normed scores.

98. Rayman, Jack R. Sex and the Single Interest Inventory: The Empirical Validation of Sex-Balanced Interest Inventory Items. Journal of Consulting and Psychology, v23 n3, pp239-246, May 1976.

Previous studies of sex bias in interest measurement have suggested that item sex bias is a necessary concomitant of inventory validity. This study undertook the construction of a valid interest inventory consisting primarily of items that have been pretested for sex balance. Items from a pretest that were sex-balanced and that showed "good" item characteristics were included on the Unisex Interest Inventory (UNI-II). Both the UNI-II and the American College Testing Interest Inventory (ACT-IV) were administered to a national sample of 1,902 students. The items on the UNI-II were found to be more sex-balanced, and same-scale item homogeneity, correlational analysis, and spatial configural analysis supported the concurrent and construct validity of the UNI-II.

99. Robertson, David E. Employment Testing and Discrimination. Personnel Journal, v54 n1, pp18-21, 56, January 1975.

The article deals with personnel problems associated with the status of employment-testing practices as affected by Equal Employment Opportunity legislation. A coordinated effort by business, government, and education is needed to provide clear step-by-step guidelines.

100. Resource Center on Sex Roles in Education. Implementing Title IX and Attaining Sex Equity. Application Materials for Counselors. Post-Secondary Materials. Washington, D.C.: National Foundation for the Improvement of Education, October 1977. 49p. ED 155 501.

The materials included in this booklet are designed for use by participants in Application Sessions A and B for counselors in post-secondary institutions. These materials are initial drafts prepared for field testing only. They are not the final products to be delivered at the completion of the project. The materials are organized within two sections: (1) Counseling for Sex Equity--A Context for Assessing Sex Equity in Counseling and Counseling Programs; and (2) Counseling for Sex Equity--Combating Bias in Counseling Materials and Designing Affirmative Programs. These participant materials are one component of a multi-component training model developed by the Resource Center on Sex Roles in Education under a subcontract with the Council of Chief State School Officers (CCSSO). The training model is designed to assist education personnel and interested citizens in the implementation of Title IX of the Education

Amendments of 1972 and the attainment of sex equity in education. The training model will be utilized and tested in 20 regional workshops of the CCSSO's Title IX Equity Workshops Project.

101. Rowell, E. H. Are Reading Tests Sexist? An Investigation into Sex Bias in Three Frequently Used Individualized Reading Tests. Providence: Rhode Island College, 1977. 26p. ED 145 362.

A review of the literature indicates that sex-role stereotyping is common in basal readers, in children's novels, and in content-area reading materials. This study analyzed three frequently used individualized reading tests for evidence of sex bias: the Diagnostic Reading Scales, the Durrell Analysis of Reading Difficulty, and the Classroom Reading Inventory. Each test was evaluated according to a frequency count of masculine and feminine nouns and pronouns. Comparisons were also made between the types and numbers of male and female characters, occupations portrayed, and famous people described in each selection. Data (described and presented in tabular form) clearly showed that the three tests exhibited considerable sex bias in language usage, number of animal and human characters of each sex, and male/female status within the selections. Deletion of generic terms did not significantly alter the ratios. In conclusion, it was suggested that test publishers attempt to represent males and females more equally; the validity of sex-biased tests for measuring students' abilities and for establishing ability groups is also questioned.

102. Saario, Terry N.; Jacklin, Carol N.; Tittle, Carol K. Sex-Role Stereotyping in the Public Schools. Harvard Educational Review, v43

n3, pp386-416, August 1973.

Sex-role stereotyping in three major areas is investigated: elementary school basal readers, educational achievement tests, and differential curricular requirements for males and females. The section on educational testing raises the issue of sex bias in item content and language usage and shows the presence of sex-role stereotyping in the California Achievement Tests, Iowa Tests of Basic Skills, Iowa Test of Educational Development, Metropolitan Achievement Tests, Sequential Tests of Educational Progress, SRA Achievement Series, Stanford Early School Achievement Test, and the Stanford Achievement Tests.

103. Schlossberg, Nancy K.; Goodman, Jane. Imperative for Change: Counselor Use of the Strong Vocational Interest Blanks. Impact, v2 n1, pp25-29, 1972. (Entire issue reprinted in ED 071 012.)

It is pointed out that the Strong Vocational Interest Blank (SVIB) limits the occupational choices of both sexes; that the occupations listed for women are of lower status and lower salary; that the two forms are administered arbitrarily by counselors; and that the handbook offers harmful guidelines for the use of the SVIB. It is suggested that, until revisions of the SVIB are complete, the practicing counselor should always give both the men's and women's forms to all clients; use the scores as a starting point in locating interest areas; and support the changes being made in the inventory.

104. Schlossberg, Nancy K.; Pietrofesa, John J. Perspectives on Counseling Bias: Implications for Counselor Education. Counseling Psychologist,

v4 n1, pp44-54, 1973.

Counselor bias is defined as holding an opinion without adequate evidence. Sex bias is viewed as common in tests such as the Strong Vocational Interest Blank (SVIB) in regard to women entering "masculine" occupations and in regard to counseling materials, which often reflect stereotyped roles. It is noted that female counselors display as much bias as male counselors. Suggested ways for training institutions to deal with the problem include expansion of cognitive understanding, consciousness raising, the acquisition of helping skills, and program development.

105. Schönberger, Ann K. Are Mathematics Problems a Problem for Women and Girls? 1978. ED 160 446.

The primary questions investigated are: Is it true that males excel in mathematical problem solving? and, if so, when does this superiority develop? An examination of recent research showed that sex-related differences, although small, did exist, even after controlling for mathematics background. Differences appeared in early adolescence and were found only with subjects of above average ability and on problems whose content is spatial or sex biased. Eliminating sex bias in tests eliminates or reduces differences. The remaining differences are probably involved with social attitudes toward problem solving as a male activity.

106. Schreiber, Karen J. Sexist Issues in Child Advocacy. Clinical Psychologist, v29 n2, pp222-23, Winter 1976.

This work contends that child advocacy by clinical psychologists in the public school system must include efforts to eliminate the sexism that clearly exists in counseling, vocational guidance, curriculum, testing, placement, and school activities. Legal cases involving the exclusionary practices toward females are cited, and specific recommendations are made as to methods of diminishing sex bias in schools.

107. Sedlacek, William E. Recent Developments in Test Bias Research. University of Maryland Cultural Study Center Research Report No. 2-76. College Park, Maryland: University of Maryland, Cultural Study Center, 1976. 12p. ED 127 532.

Three types of test bias are discussed: content bias, atmosphere bias, and use bias. While much concern has been expressed about the content of tests or the atmosphere in which they are given, it is more important to focus on how tests are used in making decisions about people. Four models of test use are defined: regression model, constant ratio model, conditional probability model, and the equal probability model. The writer feels that rather than asking if tests are biased, one should ask if the society is biased, since tests are always employed in a cultural context. The answer to eliminating test bias is to eliminate racism and sexism in society.

A six-stage model to eliminate racism and sexism is presented:

- (1) Determining Cultural, Racial and Sexual Differences;
- (2) Determining How Racism Operates;
- (3) Examining Racial and Sexual Attitudes;
- (4) Determining Sources of Racial Attitudes;
- (5) Changing Behavior: What

Can Be Done? and (6) Changing Behavior: How It Can Be Done.

108. Shaffer, W. Michael. The Use of Item-Favorability Data as Evidence of Sex Bias in Interest Inventories. April 1976. 13p. ED 128 463.

Item data from two scales of the Ohio Vocational Interest Survey were used to investigate the relationship between item favorability and sex bias. Item-response data, item sex group interaction data, and item-total score correlational (group interaction) data were examined. It was found that item favorability was not a suitable criterion for the identification of existing sex bias. Of the three procedures, the item-total score correlation technique appeared to be the most sensitive to the existence of possible sex bias in the interest scales.

109. Sheridan, E. Marcia. Reading and Sex Role Identification: Exercises for Teacher and Students. 1977. 72p. ED 150 590.

This document discusses sex-role stereotyping in classrooms, reading materials, and standardized tests and examines the implications of sexism in reading and communication skills in classrooms. A section for teachers, intended for preservice or inservice sessions, contains materials, objectives, and procedures for general discussion on values clarification and includes a textbook analysis work sheet, a classroom environment appraisal, and a school inventory form.

Exercises for elementary students examine sex stereotyping in student attitudes toward jobs, roles, and careers. Students are also asked

to evaluate textbooks and television programs. Junior and senior high school students are directed to consider their personal attitudes, opinions, and values through a series of written exercises aimed at recognition of sexism in advertising, on television and in newspapers. A bibliography on the topic of sexism is appended.

110. Stebbins, Linda B.; et al. Sex Fairness in Career Guidance: A Learning Kit. 1975. 265p. ED 127 462. Available only from: Abt Publications, 55 Wheeler Street, Cambridge, Massachusetts 02138.

Though this publication focuses on career counseling, the third chapter discusses "Guidelines and Recommendations for Sex-Fair Use of Career Interest Inventories." Twelve guidelines and recommendations are presented for administering the inventory; recognizing sex bias in the technical procedures and materials; reporting inventory results; recognizing sex bias in interpretative materials; and interpreting inventory results.

111. Strassberg-Rosenberg, Barbara; Donlon, Thomas F. Content Influences on Sex Differences in Performance on Aptitude Tests. April 1975. 45p. ED 110 493.

The purpose of the present study is to examine the April 1974 Scholastic Aptitude Test (SAT) for item-content bias between the sexes. By so doing, this study forms a logical extension of the work of Coffman (1961) on the '54 SAT, and Donlon (1972) on the '64 SAT. A study of item-sex bias was conducted using the method of delta-plots. The

items demonstrated to have different "psychological meaning" were then investigated for patterns of content bias by referring to the test assembler's classifications. In addition, the test was inspected using the criteria established by Tittle, et al. (1974) and Lockheed-Katz (1973) for determining sex bias. The results of the two methods of analysis were compared.

112. Tanney, Mary Faith. Face Validity of Interest Measures: Sex Role Stereotyping. Minneapolis, Minn.: Aries Corp., 1973. 25p. ED 095 368.

An attempt was made to search the literature for studies that would indicate whether or not sex-role stereotyping (via language) has been examined for its impact on people who take interest measures. A careful scrutiny revealed no empirical data to evaluate the hypothesis that the linguistic structure of items does or does not influence results on career interest inventories. Conclusions drawn from other fields (applied sociolinguistics, social psychology, and clinical psychology) strongly support the need for the linguistic aspect of inventories to be examined via a series of studies. The American Psychological Association and National Vocational Guidance Association guidelines for the construction of tests and for career information materials also support the need for such a series of studies in the interest of insuring unbiased tests.

113. Thomas, Susan. Measurement of Sex Roles: What Are We Really Measuring? March 1978. 40p. ED 160 659.

This study was conducted: (1) to identify research studies in the area of sex-role behavior conducted between 1970 and 1977 in the fields of psychology, anthropology, sociology, and education; (2) to survey operational definitions of the term "sex role"; (3) to examine the techniques and instruments used to gather sex-role information; and (4) to determine the reliability and validity of those instruments. One hundred and seventy-eight journal articles were assigned to the following sex-role categories: identification, perception, preference, adoption, and expectations. A list of measurement instruments was prepared for each of these categories and is appended. A review of these articles revealed a lack of concern for several evaluation issues: the reliability and validity of the instruments used, the appropriateness of norms, and the definition of what was being measured. Generally, qualitative descriptions of instruments were included, but psychometric descriptions were frequently omitted. The author contends that an operational definition of sex roles and the reliability and validity of sex-role instruments must be ascertained in future studies. In addition, a theoretical integration of the concept of sex-role behaviors, including Bem's concept of physical androgyny, is recommended.

114. Tittle, Carol Kehr. Minimizing Sex Bias in Interest Measurement through the Context of Testing and Interpretative Materials. April 1974. 10p. ED 097 361.

These guidelines deal specifically with the context in which the measurement of interests occur and the interpretive materials made

available to test users. They are classified and discussed in three categories: guidelines intended to inform the test user of possible factors influencing a sex-biased response on interest inventories; guidelines intended to eliminate overt sex bias through modifying language and examples presented in interpretive materials; and guidelines intended for research, examining the context of testing and recommending orientation sessions to help respondents examine sex-role stereotypic sets toward activities and occupations. Previous research shows that women's responses change under instructions designed to change the sex-stereotypes set; research on the psychology of women has examined career stereotypes, role stereotypes, and the motive to avoid success. Research on the effect of orientation and set should take these variables into account, and a variety of studies can be undertaken to examine the effect of modifications in testing context on the validity of interest measurement for women.

115. Tittle, Carol K.; Denker, Elenor R. Re-Entry Women: A Selective Review of the Educational Process, Career Choice, and Interest Measurement. New York: City University of New York, Inst. for Research and Development in Occupational Education; Albany: N.Y. State Education Department, Bureau of Two-Year College Programs, Office of Occupational and Continuing Education, August 1973. 69p. ED 143 899.

Opportunities and barriers in post-secondary education for the mature woman are the focus of the first part of this review. Barriers

including college restrictions, family resistance, and financial problems as well as attitudinal and self-concept characteristics are discussed. Opportunities are presented in a review of counseling considerations and programs that have been established. Theory and research on career choices for women, especially the "re-entry" woman, are covered in the second section. The major theories as well as the findings of recent research studies are presented. The third section deals specifically with interest measurement for women. The issue of sex bias is discussed, and recent research in the area is reviewed. A summary and implications section is included as well as an extensive bibliography. The National Institute of Education Guidelines for Assessment of Sex Bias and Sex Fairness in Career Interest Inventories is appended.

116. Tittle, Carol K. Sex Bias in Educational Measurement: Fact or Fiction? Measurement and Evaluation in Guidance, v6 n4, pp219-226, January 1974.

A study of sex bias and sex-role stereotypes in the content of educational achievement tests and interest inventories was conducted. A word count of male nouns and pronouns, and female nouns and pronouns was made for eight of the most frequently used educational achievement tests, and ratios of male to female nouns and pronouns were computed. Results show content bias in these tests, with males typically referred to more frequently than females. Numerous examples of sex-role stereotypes were also recorded. An examination of the Strong Vocational Interest Blank and the Kuder Occupational Interest

Survey showed that the range of occupations presented to women is restricted and tends to reflect sex-role stereotypes. It is recommended that (a) test publishers institute review procedures to provide a less stereotyped view of women, and (b) publishers of vocational interest inventories construct additional norm groups and provide more extensive occupational listings for women. Test users can help eliminate sex bias by being aware of it, by encouraging the development of unbiased tests, and by using educational tests in a non-stereotyped manner.

117. Tittle, Carol Kehr. Sex Bias in Testing: A Review with Policy Recommendations. Princeton, N.J.: ERIC Clearinghouse on Tests, Measurement, and Evaluation; San Francisco, Calif.: Women's Educational Equity Communications Network, 1978. 58p. ED 164 623.

Educational achievement tests, career interest inventories, and aptitude tests are reviewed for examples of sex bias, and changes in policy concerning the use of these tests are suggested. These suggestions are within the authority and responsibility of local and state educational administrators, teachers, counselors, parents, and students. The author concludes that guidelines concerning the review, selection, use, and interpretation of tests are especially needed for policymakers, since educational tests are neither inherently sex fair nor sex biased. Sources of guidelines for evaluating the fairness and the use of a test are discussed as well as general professional standards for test construction. A number of examples from actual test items illustrate cases of bias against females--in achievement tests, male characters are mentioned more often and in

more active roles; career interest inventories have separate male and female scales and norms, resulting in disproportionate counseling about career options; and aptitude tests may be written and interpreted according to sex-role stereotypes. More stringent guidelines for test selection are strongly recommended whenever selection tests result in adverse impact. A bibliography is appended.

118. Tittle, Carol Kehr. Women and Educational Testing. Phi Delta Kappan, v55 n2, pp118-119, October 1975.

This work presents documentation suggesting sex bias can be found in educational testing and suggests that a more objective treatment of women in educational tests can be made by showing women in a wider variety of occupations and activities and by more equal representation of women in test content...

119. Tittle, Carol Kehr; et al. Women and Educational Testing: A Selective Review of the Research Literature and Testing Practices. Washington, D.C.: Association for Measurement and Evaluation in Guidance; Princeton, N.J.: Educational Testing Service, 1974. 154p. ED 092 591. Available only from: Women and Educational Testing, Publications Order Offices, Educational Testing Service, Princeton, New Jersey 08541.

This report provides an exploratory survey of several aspects of educational testing with a view toward identifying discrimination against women. Two major ways in which discrimination in educational testing can occur--reinforcement of sex-role stereotypes and

restriction of individual choice--are examined. Major educational achievement tests are analyzed for sex-role stereotypes and bias in language usage. Research studies of item bias and test bias in the college-prediction setting are summarized, and several textbooks are examined for discussions of test bias. Two of the major occupational/vocational interest inventories are examined as well as studies related to their use with women. The results of the study of language usage in educational achievement tests show that test content is biased against women. This was measured by the ratio of male nouns and pronoun referents to female nouns and pronoun referents. Other findings consist of numerous examples of sex-role stereotypes in educational achievement tests and the restriction of choices for individual women on occupational interest inventories. Among suggestions for future research studies are a systematic examination of item bias for women as a group and a routine analysis of college prediction studies done separately for women and men.

120. Tolor, Alexander; Brannigan, Gary G. Sex Differences Reappraised: A Rebuttal. Journal of Genetic Psychology, v127 n2, pp319-321, December 1975.

This rebuttal of the criticisms made by Evans and Sperekas points to the fact that sex differences have been found by the authors on Rotter's Internal-External Scale, that the purported sex-biased items in the Future Events Test are not necessarily outside the response repertoire of women, and that the criticism of including female-relevant items cannot be leveled at the same time as the criticism concerning male-relevant items.

121. Verheyden-Hilliard, Mary Ellen. The Use of Interest Inventories with the Re-Entering Woman. Minneapolis, Minn.: Aries Corp., 1974. 47p. ED 095 369.

This study, a literature review, examines the critical factors affecting re-entry women's access to jobs and their chances of obtaining and retaining work at a level appropriate to their capabilities. An examination of the re-entry woman deals with socialization and self-concept, changing attitudes, and new expectations. Bias against women among the professionals to whom they turn for aid is documented, and the potential danger of placing a sex-fair interest inventory in the hands of a sex-biased counselor is pointed out. New concepts concerning the re-entry woman in the work force, as a student, as a family member, and as an achiever are cited and recommended to counselors interpreting interest inventories. Discrimination against women desiring training for a second career is discussed. The paper examines selected material from various inventories as examples that are seen to affect the usefulness of an interest inventory in relation to the re-entering woman. Language, items, instructions, and interpretive materials are discussed, and recommendations are made for each area as well as for counselor education and for research.

122. Waetjen, Walter B. Sex Differences in Learning: Some Open Questions. September 23, 1977. 17p. ED 154 263.

A common assumption is that boys are innately superior in analytical and quantitative skills, and girls are superior in verbal skills. Research indicates, however, that these assumptions hold true only at

certain times in the life cycle of each sex. There is evidence that cultural attitudes, rather than innate sex differences, account for differences in achievement. Males are found to like mathematics if their parents approve of mathematics education, but girls' attitudes are negative under the same condition. The more theoretically oriented the teachers (male and female) are, the better the boys' attitudes toward mathematics. Many tests of aptitude or achievement are biased in favor of one sex or the other. This is due to the kinds of questions asked, the manner in which test scores are interpreted, or the conditions of test taking, which occasionally distort results since boys perform more poorly in stress-producing situations. Attempts of test makers to obscure differences in performance by boys and girls run counter to the efforts of parents and teachers to instill different attitudes and motivations in each sex. Research indicates that only minimal differences in ability and achievement between the sexes can be attributed to physiology.

123. Wild, Cheryl L.; Dwyer, Carol A. Sex Bias in Selection (RM 78-1). Princeton, N.J.: Educational Testing Service, 1978. 24p. Available only from the Publications Office, Educational Testing Service, Princeton, New Jersey 08541.

This paper begins by summarizing existing research on sex bias in selection. The validity of the traditional criterion in selection, grade-point average (GPA), is then discussed. Evidence is presented that indicates that grade-point averages are not composites of equivalent units, that they have different meanings for different

individuals, that the GPA may be biased for some groups, that the GPA reliability is less than the reliability of the predictors, and that the GPA may not be a sufficient criterion. A model to evaluate the selection process is proposed. It includes evaluation in terms of both psychometric and value definitions of bias, evaluation of predictor and criterion sufficiency, appropriateness, and subgroup reliability.

124. Wirttemberg, T. Jeana; Nakamura, Charles Y. Education: Barrier or Boon to Changing Occupational Roles of Women. Journal of Social Issues, v32 n3, pp165-179, 1976.

It is argued that while traditional educational institutions have contributed to occupational stratification by sex, they have the potential to play a primary role in the sexual integration of the occupational world. Research on the development of the occupational aspirations of young women is reviewed, and three major sex-biased educational practices that may be contributing to the restriction of these aspirations are discussed: textbooks and instructional materials, differential curricula for males and females, and vocational counseling and testing. Recent legislation is evaluated for its usefulness in modifying sex bias in each of these areas. A conceptual framework is suggested for designing policy research aimed at maximizing women's occupational potential.

125. Women's Record. Integrated Education, v12 n3, pp42-44, July-August 1974.

This is a review of developments on both a national and state-by-state basis pertaining to: women and poverty, research on women, paid housewifery, politics, personalities, biased textbooks, bias in tests, new health policies, women Rhodes scholars, sexism in colleges, and so on.

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